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- 1 1. A medical device comprising:
2 a core element including a first portion extending substantially longitudinally and a
3 second portion being wound to form a helical coil, the helical coil tapering from a larger
4 diameter at a proximal end thereof to a smaller diameter at a distal end thereof; and
5 a flat wire substantially wrapping the first and second portions of the core element.
- 1 2. The medical device of claim 1 wherein the core element comprises a shape-memory
2 material.
- 1 3. The medical device of claim 1 wherein a distal end of the flat wire is attached to the
2 distal end of the helical coil.
- 1 4. The medical device of claim 1 wherein the flat wire comprises a square cross-section.
- 1 5. The medical device of claim 1 wherein the helical coil is adapted to ensnare objects in
2 an anatomical lumen.
- 1 6. The medical device of claim 1 wherein the helical coil substantially unwinds upon
2 being subjected to a force along a longitudinal axis of the core element.
- 1 7. The medical device of claim 6 wherein the helical coil substantially rewinds upon
2 cessation of the force exerted along the longitudinal axis of the core element.
- 1 8. The medical device of claim 1 wherein a layer of a polymeric material substantially
2 covers an outer surface of the flat wire.

1 9. The medical device of claim 1 wherein a layer of a polymeric material substantially
2 covers a portion of the flat wire wrapping the helical coil.

1 10. The medical device of claim 1 further comprising a polymeric sheath substantially
2 covering at least a portion of the flat wire, the polymeric sheath being composed of a heat
3 shrink extrusion with a plurality of colors along a length thereof.

1 11. The medical device of claim 10 wherein the heat shrink extrusion and the plurality of
2 colors along the length thereof are resistant to laser energy.

1 12. The medical device of claim 1 wherein the helical coil is reversibly transformed into a
2 substantially linear configuration.

1 13. The medical device of claim 1 further comprising a catheter adapted to receive the
2 core element and the flat wire therein.

1 14. The medical device of claim 13 wherein the helical coil assumes a substantially linear
2 configuration when positioned within the catheter and expands back into a tapered
3 configuration upon removal from the catheter.

1 15. A medical device comprising:
2 a core element including a first portion extending substantially longitudinally and a
3 second portion being wound to form a helical coil, the helical coil tapering from a larger
4 diameter at a proximal end thereof to a smaller diameter at a distal end thereof;
5 a wire element substantially wrapping the first portion of the core element; and

6 a sheath coupled to a distal end of the wire element and adapted to substantially cover
7 the second portion of the core element.

1 16. The medical device of claim 15 wherein the core element comprises a shape-memory
2 material. 17. The medical device of claim 15 wherein a distal end of the wire element is
3 attached to the distal end of the helical coil.

1 18. The medical device of claim 15 wherein the wire element is a flat wire.

1 19. The medical device of claim 15 wherein the helical coil is adapted to ensnare objects
2 in an anatomical lumen.

1 20. The medical device of claim 15 wherein the helical coil substantially unwinds upon
2 being subjected to a force along a longitudinal axis of the core element.

1 21. The medical device of claim 20 wherein the helical coil substantially rewinds upon
2 cessation of the force exerted along the longitudinal axis of the core element.

1 22. The medical device of claim 15 wherein the sheath is heat-shrunked about the second
2 portion of the core element.

1 23. The medical device of claim 15 wherein the sheath comprises a polymeric material.

1 24. The medical device of claim 15 wherein the sheath comprises a heat shrink extrusion
2 with a plurality of colors along a length thereof.

1 25. The medical device of claim 24 wherein the heat shrink extrusion and the plurality of
2 colors along the length thereof are resistant to laser energy.

1 26. ~~The medical device of claim 15 wherein the helical coil is reversibly transformed into~~
2 a substantially linear configuration.

1 27. The medical device of claim 15 further comprising a catheter adapted to receive the
2 core element, the wire element, and the sheath therein.

1 28. The medical device of claim 27 wherein the helical coil assumes a substantially linear
2 configuration when positioned within the catheter and expands back into a tapered
3 configuration upon removal from the catheter.

1 29. A medical device comprising:
2 a core element including a first portion extending substantially longitudinally and a
3 second portion including at least one curved element and a helical coil tapering from a larger
4 diameter at a proximal end thereof to a smaller diameter at a distal end thereof.

1 30. The medical device of claim 29 wherein the core element comprises a shape-memory
2 material.

1 31. The medical device of claim 29 further comprising a flat wire substantially wrapping
2 the first and second portions of the core element.

1 32. The medical device of claim 31 wherein a distal end of the flat wire is attached to the
2 distal end of the helical coil.

1 33. ~~The medical device of claim 31 wherein the flat wire comprises a square cross-section.~~

1 34. The medical device of claim 31 wherein a layer of a polymeric material substantially
2 covers an outer surface of the flat wire.

1 35. ~~The medical device of claim 31 wherein a layer of a polymeric material substantially~~
2 covers a portion of the flat wire wrapping the helical coil.

1 36. The medical device of claim 29 wherein the helical coil is adapted to ensnare objects
2 in an anatomical lumen.

1 37. The medical device of claim 29 wherein the helical coil and the at least one curved
2 element substantially deform upon being subjected to a force along a longitudinal axis of the
3 core element.

1 38. The medical device of claim 37 wherein the helical coil and the at least one curved
2 element substantially reform upon cessation of the force exerted along the longitudinal axis of
3 the core element.

1 39. The medical device of claim 29 wherein the helical coil and the at least one curved
2 element are reversibly transformed into a substantially linear configuration.

1 40. The medical device of claim 29 further comprising a catheter adapted to receive the
2 core element.

1 41. The medical device of claim 29 wherein the helical coil assumes a substantially linear
2 configuration when positioned within the catheter and expands back into a tapered
3 configuration upon removal from the catheter.

1 42. The medical device of claim 29 further comprising a sheath substantially covering the
2 second portion of the core element.

1 43. The medical device of claim 42 wherein the sheath is heat-shrunked about the second
2 portion of the core element.

1 44. The medical device of claim 42 wherein the sheath comprises a polymeric material.

1 45. The medical device of claim 42 wherein the sheath comprises a heat shrink extrusion
2 with a plurality of colors along a length thereof.

1 46. The medical device of claim 45 wherein the heat shrink extrusion and the plurality of
2 colors along the length thereof are resistant to laser energy.

1 47. The medical device of claim 29 wherein the curved element is a single loop located at
2 a distance from the proximal end of the helical coil.

1 48. The medical device of claim 29 further comprising:
2 a flat wire substantially wrapping the first portion of the core element; and

3 a polymer sheath coupled to a distal end of the flat wire and adapted to substantially
4 cover the second portion of the core element.

1 49. A medical device comprising:

2 a core element including a first portion extending substantially longitudinally and a
3 second portion being wound to form a curved shape; and
4 a polymeric extrusion substantially covering the second portion of the core element,
5 the polymeric extrusion comprising a plurality of colors along a length thereof, wherein the
6 polymeric extrusion and the plurality of colors along the length thereof are resistant to laser
7 energy.

1 50. The medical device of claim 49 wherein the curved shape is a helical coil tapering
2 from a larger diameter at a proximal end thereof to a smaller diameter at a distal end thereof.

1 51. The medical device of claim 49 wherein the curved shape unwinds upon being
2 subjected to a force along a longitudinal axis of the core element.

1 52. The medical device of claim 51 wherein the curved shape rewinds upon cessation of
2 the force exerted along the longitudinal axis of the core element.

1 53. The medical device of claim 49 further comprising a catheter adapted to receive the
2 core element and the polymeric extrusion.

- 1 54. The medical device of claim 53 wherein the curved shape of the core element assumes
- 2 a substantially linear configuration when positioned within the catheter and expands back into
- 3 the curved shape upon removal from the catheter.